



Mitigation Measures Alleviate Drainage Problem

Full Mitigation Best Practice Story

Tarrant County, Texas

Grapevine, TX – Oak Grove Park's Ballfield Complex, located in Grapevine, Texas, was built in the 1960s and is home to local baseball and soccer teams. Over the years, surface water resulting from inadequate drainage along with additions to the park caused flood and maintenance issues and posed problems for pedestrians.



Acting upon requests and recommendations for new fields, the City of Grapevine came up with a master plan. This plan would create a unique park by creating berms, drainage ditches, retention walls, installing storm water drainage pipes, uprooting and replanting trees, and elevating the land in targeted areas to prevent future flooding of the park.

"During the design and development stage, I along with several staff members toured many, many complexes," said Kevin Mitchell, Assistant Director of Parks and project manager. "We wanted to look at the good as well as the bad. And we tried not to make the same mistakes that we noted."

The first obstacle to overcome was the temporary removal of hundreds of oak trees. Grapevine, Texas, is a member of "Tree City USA," a tree planting and tree care program sponsored by The National Arbor Day Foundation for cities and towns in the United States. A temporary tree farm and irrigation system were created to house and nourish the relocated trees during construction. Construction occurred around groups of trees that could not be uprooted. "We spent just shy of one-fourth of a million dollars digging up trees, moving them, and then moving them back," said Mitchell.

By nature, stormwater collects debris, chemicals, dirt, and other pollutants before flowing into a storm sewer system or directly to a lake, stream, river, or wetland. Hence, the planners utilized stormwater management as a tool to prevent this debris from entering the water system. "We used storm scepters, something new to the project, to separate the sand, silt, and clay and keep debris from going back into the lake," said Mitchell. The scepters allow water to enter into a swirl chamber where it is filtered before moving into a "floatable" chamber. There, general debris are collected before the water is sent to the outlet chamber for disbursement into Lake Grapevine. Berms were created as an additional filtering system, allowing water to flow through grassy areas that serve as a bio-filtering system before it reaches the lake.

Design and development also included land elevation at varying heights. For example, the area where the newly constructed concession building and public restrooms are located was elevated above nine foot. Retention walls were strategically placed to stabilize the soil from down slope movement and erosion, especially since tiered landscaping was utilized throughout the park. It also gave rise to more useable land.

Stone pavers created a solid surface for sidewalks, but allowed natural drainage and migration of water into the earth by permitting water to drain through the spaces between the pavers.

The Oak Grove Ballfield Complex now backs to Lake Grapevine. Part of the project was to irrigate the athletic field with water from Lake Grapevine. An irrigation pond which holds approximately 3.5 million gallons of water was created and a pumping station was built. Water is purchased from the City of Dallas, which is a savings for the park.

According to Mitchell, transformation of the 33 acre park into a sports haven cost approximately \$13 million, and construction was completed within a 10 month period. "The good thing about this is that we paid cash for the project," said Mitchell. "We used tax money spent by people coming into our town to shop."

The design development stage took nearly a year to complete and was time well spent. Visiting Oak Grove Park's Ballfield Complex following heavy rainfall is no longer problematic, due partly to actions taken to reduce or eliminate long-term risk to people and property from hazard and their by local artist. Through good mitigation planning and working with the local authorities, a paradise for little league players was created and will be in use for years to come.

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region VI**

State: **Texas**

County: **Tarrant County**

City/Community: **Grapevine**

Key Activity/Project Information

Sector: **Public**

Hazard Type: **Flooding; Hurricane/Tropical Storm**

Activity/Project Type: **Mitigation Planning/Disaster Resistant Universities**

Activity/Project Start Date: **06/2008**

Activity/Project End Date: **04/2009**

Funding Source: **Local Sources**

Funding Recipient: **Local Government**

Activity/Project Economic Analysis

Cost: **\$13,000,000.00 (Estimated)**

Non FEMA Cost:

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **No**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **No**

Reference URLs

Reference URL 1: **<http://www.gvpard.com>**

Reference URL 2: **<http://www.fema.gov/government/mitigation.shtm>**

Main Points

No Main Points were entered.

Main Points



Floodwaters inundated the softball field at Oak Grove Park



Drainage ditch channels surface water into Lake Grapevine



Photo of one of the retention walls and one area where the land was elevated



Photo of Kevin Mitchell, Assistant Director of Parks standing alongside statue erected by a local artist. Stone pavers are also shown